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Stefan Hornung

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER

SEMENENKO, YURIY

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,269	Applicant(s) HORNUNG ET AL.	
	Examiner YURIY SEMENENKO	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11 and 13-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Amendment filed on 08/18/2008 has been entered.
Claims 24-31 are newly added.
Claims 11 and 13 – 31 are now pending in the application.

Claims

2. Claims 1-7, 10 and 20 amendments, filed on 08/18/2008 are considered and acknowledged.

Claim Objections

3. Claims 11 and 13 – 31 are objected to because of the following informalities:

1) As to Claims 11, 17 and 18: it is unclear and ambiguity “the phase terminal is structurally configured identically to one of the positive terminal or the negative terminal.” Configured identically by what parameters ?

Claims 13-16 directly or indirectly depend on claim 11 and inherit the same deficiency.

Claims 27-31 directly or indirectly depend on claim 17 and inherit the same deficiency.

2) As to Claim 18: It is unclear how it could be recognized that the phase terminal already had rotated by 180° or had not yet in such limitation “ the phase terminal being situated rotated by 180° about the terminal longitudinal axis of the terminal lug in relation to an orientation of one of the structurally identically configured positive terminal or the structurally identically configured negative terminal ” ;

Claims 19 -26 directly or indirectly depend on claim 18 and inherit the same deficiency.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11, 13-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 11, 17 and 18: Unclear what does it mean "the phase terminal is structurally configured identically to one of the positive terminal or the negative terminal" Is it mean terminals running in parallel axis, or positioning symmetrically to central plane of the module or positioning to run in parallel axis and in same direction or terminals have identical (same) shape and size and etc. The claim language needs to be clarified. As to claims 18: Further, confusing limitations "the phase terminal being situated rotated by 180° about the terminal longitudinal axis of the terminal lug in relation to an orientation of one of the structurally identically configured positive terminal or the structurally identically configured negative terminal". The examiner thinks that neither the Patent Office nor any reasonable person in this art would be able to recognize whether the phase terminal already had rotated by 180° or had not yet.

Claims 13-16 directly or indirectly depend on claim 11 and inherit the same deficiency.

Claims 27-31 directly or indirectly depend on claim 17 and inherit the same deficiency.

Claims 19 -26 directly or indirectly depend on claim 18 and inherit the same deficiency.

To apply art, Examiner assumed that the phase terminal is running parallel to one of the positive terminal or the negative terminal.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5.1. Claims 18-20, 22 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Spitz et al. (US 6774476) hereinafter Spitz.

The applied reference has a common inventor Peter Urbach and Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 18: Spitz discloses a method for manufacturing a converter module 1, 2, Fig. 2 comprising: providing a positive terminal 20 (B+), a negative terminal 12 (B-), a phase terminal 18, 19 (U), a first semiconductor chip 15 and a second semiconductor chip 15, at least one of the positive terminal, the negative terminal, and the phase terminal having a contact plate 18, a bar-shaped terminal lug 19, Fig. 4, 5 which is positioned asymmetrically on the contact plate 18, and an auxiliary element 34, Fig. 5 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the bar-shaped terminal lug, wherein the phase terminal is structurally configured identically to one of the positive terminal or the negative terminal; stacking the positive terminal 20, Fig. 2, negative terminal 20, the phase terminal 18, 19, the first semiconductor chip 15, and the second semiconductor chip 15 on top of one another in a joining device, the phase terminal (as located) 18, 19, Fig. 7, being situated rotated by 180° about the longitudinal axis of the terminal lug in relation to an orientation of one of the structurally identically configured positive terminal

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or the structurally identically configured negative terminal 38, Fig. 7; and encapsulating the stack in an injection molded housing 37 and (column 7, lines 37-43).

As to claim 19: Spitz discloses the method as recited in claim 18, wherein the auxiliary element 34, Fig. 5 has a positioning aperture 35 for positioning the auxiliary element in a joining device.

As to claim 20: Spitz discloses the method as recited in claim 18, wherein the positive terminal 20 (B+), fig. 2 or the negative terminal 12 (B-) and the phase terminal 18, 19 are identical parts which are inserted into the joining device rotated by 180°.

As to claim 22: Spitz discloses the method as recited in claim 18, wherein the converter module is situated in an injection molded plastic housing 37, fig. 7 and (col. 7:37-57).

As to claim 23: Spitz discloses the method as recited in claim 18, the auxiliary element 34, fig. 5 has a positioning aperture 35 for positioning the auxiliary element in a joining device (col. 6:61-66).

5.2. Claims 11, 13-15, 17, 18, 20, 21 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe (Patent # JP-60101958) hereinafter Watanabe.

As to claim 11: Watanabe discloses in Fig. 3 a converter module, comprising: a positive terminal 1, a negative terminal 4, a phase terminal 2, a first semiconductor chip D_2 , Fig. 2 and a second semiconductor chip D_1 , the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip D_2 , and the second semiconductor chip D_1 being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 4A Fig. 4, a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate, and an auxiliary element 1B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a

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longitudinal axis of the terminal lug, the auxiliary element being able to be detached after the converter module is assembled; wherein the phase terminal is structurally arranged identically to one of the positive terminal or the negative terminal (see Fig. 3).

As to claim 13: Watanabe discloses the converter module as recited in claim 11, wherein the bar-shaped terminal lug 1, Fig. 4 is situated offset with respect to a plane created by the contact plate 1A.

As to claim 14: Watanabe discloses the converter module as recited in claim 13, wherein at least two of the positive terminal 1, the negative terminal 4, and the phase terminal 2 includes a respective bar-shaped terminal lug 1A and 4A, each bar-shaped terminal lug being situated offset so that the respective terminal lugs may be brought out from the converter module on a same level (see Fig. 3).

As to claim 15: Watanabe discloses the converter module as recited in claim 11, wherein the converter module is situated in an injection molded plastic housing 5 (Abstract).

As to claim 17: Watanabe discloses in Fig. 7 and 8 a line of multiple single-phase converter modules, comprising: a plurality of converter modules, each of the converter modules including a positive terminal 1, a negative terminal 4, a phase terminal 2, a first semiconductor chip D_2 , Fig. 2 and a second semiconductor chip D_1 , the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip, and the second semiconductor chip being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 4A, Fig. 4 a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate, and an auxiliary element 4B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug, the auxiliary element being able

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to be detached after the converter module is assembled; wherein the phase terminal is configured identically to one of the positive terminal or the negative terminal, (see Fig. 3).

As to claim 18: Watanabe discloses a method for manufacturing a converter module, comprising: providing a positive terminal 1, Fig. 3, a negative terminal 4, a phase terminal 2, a first semiconductor chip D_2 , Fig. 2 and a second semiconductor chip D_1 , at least one of the positive terminal, the negative terminal, and the phase terminal having a contact plate 4A, Fig. 4, a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate 4A, and an auxiliary element 1B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the bar-shaped terminal lug 4; wherein the phase terminal is structurally arranged identically to one of the positive terminal or the negative terminal; stacking the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip D_2 , and the second semiconductor chip D_1 on top of one another in a joining device, the phase terminal being situatedly rotated by 180° about the longitudinal axis of the terminal lug in relation to an orientation of one of the structurally identically arranged positive terminal or the structurally identically arranged negative terminal; and encapsulating the stack in an injection molded housing (Abstract).

As to claim 20: Watanabe discloses a method for manufacturing a converter module as recited in claim 18, wherein the positive terminal 1, Fig. 4 or the negative terminal 4 and the phase terminal 2 are identical parts which are inserted into the joining device rotated by 180° , Fig. 4.

As to claim 21: Watanabe discloses method for manufacturing a converter module as recited in claim 18, wherein the bar-shaped terminal lug 1,4 fig. 3-8 is situated offset with respect to a plane created by the contact plate, and wherein at least two of the positive terminal 1, the negative terminal 4, and the phase terminal 2 includes a respective bar-shaped terminal lug 4,1, each bar-shaped terminal lug being situated

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offset so that the respective terminal lugs may be brought out from the converter module on a same level.

As to claim 27: Watanabe discloses the line of multiple single-phase converter modules as recited in claim 17, wherein the bar-shaped terminal lug 1,4 fig. 3-8 is situated offset with respect to a plane created by the contact plate, and wherein at least two of the positive terminal 1, the negative terminal 4, and the phase terminal 2 includes a respective bar- shaped terminal lug 4,1, each bar-shaped terminal lug being situated offset so that the respective terminal lugs may be brought out from the converter module on a same level.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16, 19, 24 - 26, 28 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe as applied to claims 11, 13 - 15, 17, 18 and 20 above, and further in view of Irmmler (Patent #WO-7900814) hereinafter Irmmler.

As to claims 16 and 19: Watanabe discloses the converter module as recited in claim 11 (18),

except, Watanabe doesn't explicitly teach the phase terminal is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one

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of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element.

Irmeler teaches in Fig. 1 the phase terminal 24, Fig. 1 is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position (positive) terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element (see Fig. 1 and 4).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Watanabe to include in his invention that the phase terminal is configured identically to one of the positive terminal or the negative terminal; and at least one of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element in order to provide connection to electrical circuit.

As to claims 24 and 29: Watanabe discloses the converter module as recited in claim 17 (18),

wherein the bar-shaped terminal lug 1, 4, fig. 3-8 is situated offset with respect to a plane created by the contact plate 1A, wherein at least two of the positive terminal 1, the negative terminal 4, and the phase terminal 2 includes a respective bar-shaped terminal lug 1, 4 each bar-shaped terminal lug being situated offset, fig. 6 so that the respective terminal lugs may be brought out from the converter module on a same level, wherein the converter module is situated in an injection molded plastic housing 5 (Abstract),

except, Watanabe doesn't teach the auxiliary element has a positioning aperture for positioning the auxiliary element in a joining device.

Irmeler teaches in Fig. 1 the phase terminal 24, Fig. 1 is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position (positive) terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element (see Fig. 1 and 4).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Watanabe to include in his invention that the auxiliary

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element has a positioning aperture for positioning the auxiliary element in a joining device, as taught by Irmmler in order to provide connection to electrical circuit.

As to claim 26: Watanabe as modified by the teaching of Irmmler, discloses a method for manufacturing a converter module having all of the claimed features as discussed above with respect to claim 24, wherein the positive terminal 1, Fig. 4 or the negative terminal 4 and the phase terminal 2 are identical parts which are inserted into the joining device rotated by 180°, Fig. 4.

As to claim 28: Watanabe discloses the converter module as recited in claim 17, wherein the converter module is situated in an injection molded plastic housing 5 (Abstract),

except, Watanabe doesn't teach the auxiliary element has a positioning aperture for positioning the auxiliary element in a joining device.

Irmmler teaches in Fig. 1 the phase terminal 24, Fig. 1 is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position (positive) terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element (see Fig. 1 and 4).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Watanabe to include in his invention that the auxiliary element has a positioning aperture for positioning the auxiliary element in a joining device, as taught by Irmmler in order to provide connection to electrical circuit.

As to claims 25 and 30: Watanabe as modified by the teaching of Irmmler discloses the converter module as recited in claim 24(29),

except, Watanabe doesn't teach the phase terminal is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element.

Irmeler teaches in Fig. 1 the phase terminal 24, Fig. 1 is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position (positive) terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element (see Fig. 1 and 4).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Watanabe to include in his invention that the phase terminal is configured identically to one of the positive terminal or the negative terminal; and at least one of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element in order to provide connection to electrical circuit.

As to claim 31: Watanabe as modified by the teaching of Irmeler discloses the line of multiple single-phase converter modules as recited in claim 29, wherein the positive terminal 1, Fig. 4 or the negative terminal 4 and the phase terminal 2 are identical parts which are inserted into the joining device rotated by 180°, Fig. 4.

Response to Arguments

7. Applicant's arguments filed 08/18/2008 have been fully considered but they are not persuasive.

Applicants argue with respect to claims 18 and 19 "Spitz does not identically disclose (or even suggest) the feature that the phase terminal is structurally configured identically to one of the positive terminal or the negative terminal" and further "Spitz does not identically disclose (or even suggest) the feature of the phase terminal being situated rotated by 180° about the longitudinal axis of the terminal lug in relation to an orientation of one of the structurally identically configured positive terminal or the structurally identically configured negative terminal." Spitz does teach above limitations. Please see explanation in par 3, (Claim Rejections - 35 USC § 112) and par 4 (Claim Rejections - 35 USC § 102).

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Applicants argument with respect to claims 11, 17 and 18 are moot, because examiner keep only anticipation rejections and drop out in the alternative obviousness rejections. However in response to applicant's arguments with respect to claims 11, 17 and 18 against the references individually, this argument is not persuasive because Applicant cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Please see explanation in par 5.2, (Claim Rejections - 35 USC § 102).

Applicants argue “neither Acker or Watanabe does not disclose that the phase terminal is situated rotated by 180° about the longitudinal axis of the terminal lug.” Again, as it was discussed in previous Office Action, the examiner wonders how it could be recognized that the phase terminal already had rotated by 180° or had not yet in such limitations “the phase terminal being situated rotated by 180° about the terminal axis of the terminal lug in relation to one of the positive terminal or the negative terminal.” We can consider that final positions of the phase terminal 18, 19 Fig. 7 (Spitz) has being situated rotated by 180° about the terminal axis of the terminal lug in relation to one of the positive terminal or the negative terminal 38.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. S./

Examiner, Art Unit 2841

/Dean A. Reichard/

Supervisory Patent Examiner, Art
Unit 2841